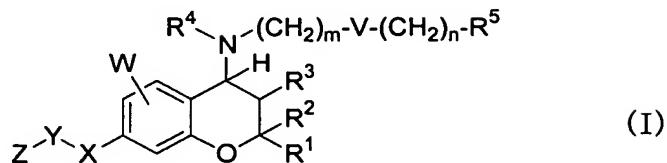


CLAIMS

1. A benzopyran compound of formula (I)



wherein

X is NR⁶ wherein R⁶ is hydrogen atom or C₁₋₄ alkyl group;

Y is a bond, SO or SO₂;

Z is C₁₋₄ alkyl group (wherein the C₁₋₄ alkyl group may be arbitrarily substituted with 1 to 5 halogen atoms or phenyl group (wherein the phenyl group may be arbitrarily substituted with C₁₋₄ alkyl group)) or phenyl group (wherein the phenyl group may be arbitrarily substituted with C₁₋₄ alkyl group);

W is hydrogen atom, hydroxy group, C₁₋₆ alkoxy group (wherein the C₁₋₆ alkoxy group may be arbitrarily substituted with halogen atom), halogen atom, C₁₋₄ alkyl group or C₁₋₆ alkylsulfonylamino group;

R¹ and R² are independently of each other C₁₋₃ alkyl group (wherein the C₁₋₃ alkyl group may be arbitrarily substituted with hydroxy group, methoxy group, halogen atom or trifluoromethoxy group);

R³ is hydrogen atom, hydroxy group or methoxy group;

m is an integer of 0 to 4;

n is an integer of 0 to 4;

V is a single bond, CR⁷R⁸ wherein R⁷ is

- C₁₋₆ alkyl group (wherein the C₁₋₆ alkyl group may be arbitrarily substituted with halogen atom, hydroxy group, C₁₋₆ alkoxy group (wherein the C₁₋₆ alkoxy group may be arbitrarily substituted with halogen atom), C₆₋₁₄ aryl group or C₂₋₉ heteroaryl group (wherein each of the C₆₋₁₄ aryl group or C₂₋₉ heteroaryl group may be arbitrarily substituted with 1 to 3 R¹⁰ wherein R¹⁰ is halogen atom; hydroxy group; C₁₋₆ alkyl group (wherein the C₁₋₆ alkyl group may be arbitrarily substituted with halogen atom, hydroxy group or C₁₋₆ alkoxy group (wherein the C₁₋₆ alkoxy group may be arbitrarily substituted with halogen atom)); C₁₋₆ alkoxy group (wherein the C₁₋₆ alkoxy group may be arbitrarily substituted with halogen atom); nitro group; cyano group; formyl group; formamide group; sulfonylamino group; sulfonyl group; amino group; C₁₋₆ alkylamino group; di-C₁₋₆ alkylamino group; C₁₋₆

alkylcarbonylamino group; C₁₋₆ alkylsulfonylamino group; aminocarbonyl group; C₁₋₆ alkylaminocarbonyl group; di-C₁₋₆ alkylaminocarbonyl group; C₁₋₆ alkylcarbonyl group; C₁₋₆ alkoxy carbonyl group; aminosulfonyl group; C₁₋₆ alkylsulfonyl group; carboxy group or C₆₋₁₄ arylcarbonyl group, and when a plurality of R¹⁰ are present, they may be identical or different from each other), C₆₋₁₄ aryl group or C₂₋₉ heteroaryl group (wherein each of the C₆₋₁₄ aryl group or C₂₋₉ heteroaryl group may be arbitrarily substituted with 1 to 3 R¹⁰ wherein R¹⁰ has the above-mentioned meaning));

- hydroxy group or

- C₁₋₆ alkoxy group (wherein the C₁₋₆ alkoxy group may be arbitrarily substituted with halogen atom), and R⁸ is

- hydrogen atom,

- C₁₋₆ alkyl group (wherein the C₁₋₆ alkyl group may be arbitrarily substituted with halogen atom, hydroxy group, C₁₋₆ alkoxy group (wherein the C₁₋₆ alkoxy group may be arbitrarily substituted with halogen atom)),

- C₆₋₁₄ aryl group or C₂₋₉ heteroaryl group (wherein each of the C₆₋₁₄ aryl group or C₂₋₉ heteroaryl group may be arbitrarily substituted with 1 to 3 R¹¹ wherein R¹¹ is halogen atom; hydroxy group; C₁₋₆ alkyl group (wherein the C₁₋₆ alkyl group may be arbitrarily substituted with halogen atom, hydroxy group or C₁₋₆ alkoxy group (wherein the C₁₋₆ alkoxy group may be arbitrarily substituted with halogen atom));

C₁₋₆ alkoxy group (wherein the C₁₋₆ alkoxy group may be arbitrarily substituted with halogen atom); nitro group; cyano group; formyl group; formamide group; sulfonylamino group; sulfonyl group; amino group; C₁₋₆ alkylamino group; di-C₁₋₆ alkylamino group; C₁₋₆ alkylcarbonylamino group; C₁₋₆ alkylsulfonylamino group; aminocarbonyl group; C₁₋₆ alkylaminocarbonyl group; di-C₁₋₆ alkylaminocarbonyl group; C₁₋₆ alkylcarbonyl group; C₁₋₆ alkoxy carbonyl group; aminosulfonyl group; C₁₋₆ alkylsulfonyl group; carboxy group or C₆₋₁₄ arylcarbonyl group, and when a plurality of R¹¹ are present, they may be identical or different from each other),

- hydroxy group or

- C₁₋₆ alkoxy group (wherein the C₁₋₆ alkoxy group may be arbitrarily substituted with halogen atom), or R⁷ together with R⁸ may represent O or S, or

V is NR⁹ wherein R⁹ is hydrogen or C₁₋₆ alkyl group (wherein the C₁₋₆ alkyl group may be arbitrarily substituted with halogen atom, C₁₋₆ alkoxy group (wherein the C₁₋₆ alkoxy group may be arbitrarily substituted with halogen atom), hydroxy group, C₆₋₁₄ aryl group or C₂₋₉ heteroaryl group (wherein each of the C₆₋₁₄ aryl group or

C_{2-9} heteroaryl group may be arbitrarily substituted with 1 to 3 R^{11} wherein R^{11} has the above-mentioned meaning)); or O, S, SO or SO_2 ;

R^4 is hydrogen or C_{1-6} alkyl group (wherein the C_{1-6} alkyl group may be arbitrarily substituted with halogen atom, C_{1-6} alkoxy group (wherein the C_{1-6} alkoxy group may be arbitrarily substituted with halogen atom), or hydroxy group); and

R^5 is

- hydrogen atom,

- C_{1-6} alkyl group (wherein the C_{1-6} alkyl group may be arbitrarily substituted with halogen atom, C_{1-6} alkoxy group (wherein the C_{1-6} alkoxy group may be arbitrarily substituted with halogen atom), amino group, carboxy group or hydroxy group),

- C_{3-8} cycloalkyl group or C_{3-8} cycloalkenyl group (wherein the C_{3-8} cycloalkyl group or C_{3-8} cycloalkenyl group may be arbitrarily substituted with halogen atom, C_{1-6} alkyl group (wherein the C_{1-6} alkyl group may be arbitrarily substituted with halogen atom, C_{1-6} alkoxy group (wherein the C_{1-6} alkoxy group may be arbitrarily substituted with halogen atom), amino group, carboxy group or hydroxy group), C_{1-6} alkoxy group (wherein the C_{1-6} alkoxy group may be arbitrarily substituted with halogen atom), amino, carboxy group or hydroxy group), or

- C_{6-14} aryl group or C_{2-9} heteroaryl group (wherein each of the C_{6-14} aryl group or C_{2-9} heteroaryl group may be arbitrarily substituted with 1 to 3 R^{12} wherein R^{12} is halogen atom; hydroxy group; C_{1-6} alkyl group (wherein the C_{1-6} alkyl group may be arbitrarily substituted with halogen atom, hydroxy group or C_{1-6} alkoxy group (wherein the C_{1-6} alkoxy group may be arbitrarily substituted with halogen atom)); C_{1-6} alkoxy group (wherein the C_{1-6} alkoxy group may be arbitrarily substituted with halogen atom); nitro group; cyano group; formyl group; formamide group; sulfonylamino group; sulfonyl group; amino group; C_{1-6} alkylamino group; di- C_{1-6} alkylamino group; C_{1-6} alkylcarbonylamino group; C_{1-6} alkylsulfonylamino group; aminocarbonyl group; C_{1-6} alkylaminocarbonyl group; di- C_{1-6} alkylaminocarbonyl group; C_{1-6} alkylcarbonyl group; C_{1-6} alkoxycarbonyl group; aminosulfonyl group; C_{1-6} alkylsulfonyl group; carboxy group, C_{6-14} arylcarbonyl group, ureido group, C_{1-6} alkylureilene group, C_{6-14} aryl C_{1-6} alkylamino group, C_{1-6} alkoxycarbonylamino group, C_{6-14} aryloxy group or C_{6-14} arylcarbonylamino group, when a plurality of R^{12} are present, they may be identical or different from each other).

2. The benzopyran compound according to claim 1, wherein both R^1 and R^2 are methyl group, R^3 is hydroxy group, and V is a single bond.

3. The benzopyran compound according to claim 1, wherein both R¹ and R² are methyl group, R³ is hydroxy group, and V is CR⁷R⁸.
4. The benzopyran compound according to claim 1, wherein both R¹ and R² are methyl group, R³ is hydroxy group, and V is NR⁹.
5. The benzopyran compound according to claim 2, wherein R⁵ is C₁₋₆ alkyl group, C₃₋₈ cycloalkyl or C₆₋₁₄ aryl.
6. The benzopyran compound according to claim 3, wherein R⁵ is C₁₋₆ alkyl group, C₃₋₈ cycloalkyl or C₆₋₁₄ aryl.
7. The benzopyran compound according to claim 4, wherein R⁵ is C₁₋₆ alkyl group, C₃₋₈ cycloalkyl or C₆₋₁₄ aryl.
8. The benzopyran compound according to claim 5, wherein W is hydrogen atom, hydroxy group, methoxy group, chlorine atom, bromine atom, methyl group, ethyl group or methylsulfonylamino group.
9. The benzopyran compound according to claim 6, wherein W is hydrogen atom, hydroxy group, methoxy group, chlorine atom, bromine atom, methyl group, ethyl group or methylsulfonylamino group.
10. The benzopyran compound according to claim 8, wherein R⁵ is C₁₋₆ alkyl group or C₆₋₁₄ aryl, R⁶ is hydrogen atom or methyl group, Y is SO₂, and Z is C₁₋₄ alkyl group.
11. The benzopyran compound according to claim 8, wherein R⁵ is C₁₋₆ alkyl group or C₆₋₁₄ aryl, R⁶ is hydrogen atom or methyl group, Y is a bond, and Z is C₁₋₄ alkyl group.
12. A benzopyran compound which is N-((3R*,
4S*)-3-hydroxy-6-methoxy-2,2-dimethyl-4-[(2-phenylethyl)amino]-3,4-dihydro-2H-1-benzopyran-7-yl)- methanesulfonamide.

13. A benzopyran compound which is N- $\{(3R^*, 4S^*)$ -3,6-dihydroxy-2,2-dimethyl-4-[(2-phenylethyl)amino]-3,4-dihydro-2H-1-benzopyran-7-yl} methanesulfonamide.

14. A benzopyran compound which is N- $\{(3R^*, 4S^*)$ -3-hydroxy-6-methoxy-2,2-dimethyl-4-[(2-phenylethyl)amino]-3,4-dihydro-2H-1-benzopyran-7-yl}-N-methylmethanesulfonamide.

15. A benzopyran compound which is N- $\{(3R^*, 4S^*)$ -4-[(2-cyclohexylethyl)amino]-3-hydroxy-6-methoxy-2,2-dimethyl-3,4-dihydro-2H-1-benzopyran-7-yl} methanesulfonamide.

16. A benzopyran compound which is N- $\{(3R^*, 4S^*)$ -3-hydroxy-6-methoxy-2,2-dimethyl-4-(pentylamino)-3,4-dihydro-2H-1-benzopyran-7-yl} methanesulfonamide.

17. A benzopyran compound which is N- $\{(3R^*, 4S^*)$ -3-hydroxy-2,2,8-trimethyl-4-[(2-phenylethyl)amino]-3,4-dihydro-2H-1-benzopyran-7-yl} methanesulfonamide.

18. A benzopyran compound which is N- $\{(3R^*, 4S^*)$ -3-hydroxy-2,2-dimethyl-4-[(2-phenylethyl)amino]-3,4-dihydro-2H-benzopyran-7-yl} methanesulfonamide maleate.

19. A benzopyran compound which is N- $\{(3R^*, 4S^*)$ -3-hydroxy-2,2-dimethyl-4-[(2-phenylethyl)amino]-3,4-dihydro-2H-benzopyran-7-yl} ethanesulfonamide hydrochloride.

20. A benzopyran compound which is 1,1,1-trifluoro-N- $\{(3R^*, 4S^*)$ -3-hydroxy-2,2-dimethyl-4-[(2-phenylethyl)amino]-3,4-dihydro-2H-benzopyran-7-yl}- methanesulfonamide maleate.

21. A benzopyran compound which is N- $\{(3R^*, 4S^*)$ -3-hydroxy-2,2-dimethyl-4-[(2-phenylethyl)amino]-3,4-dihydro-2H-benzopyran-7-

-yl}-N-methylmethanesulfonamide hydrochloride.

22. A benzopyran compound which is N-((3*R*^{*},
4*S*^{*})-6-bromo-3-hydroxy-2,2-dimethyl-4-[(2-phenylethyl)amino]-3,4-dihydro-2*H*-benzopyran-7-yl}- methanesulfonamide.

23. A benzopyran compound which is (3*R*^{*},
4*S*^{*})-2,2-dimethyl-7-dimethylamino-4-[(2-phenylethyl)amino]-3-chromanol hydrochloride.

24. A benzopyran compound which is (3*R*^{*},
4*S*^{*})-2,2-dimethyl-7-methylamino-4-[(2-phenylethyl)amino]-3-chromanol hydrochloride.

25. A benzopyran compound which is (3*R*^{*},
4*S*^{*})-4-{{2-(4-fluorophenyl)ethyl}amino}-2,2-dimethyl-7-dimethylamino-3-chromanol hydrochloride.

26. A benzopyran compound which is (3*R*^{*},
4*S*^{*})-6-methoxy-2,2-dimethyl-7-dimethylamino-4-[(2-phenylethyl)amino]-3-chromanol.

27. A benzopyran compound which is (3*R*^{*},
4*S*^{*})-6-methoxy-2,2-dimethyl-7-methylamino-4-[(2-phenylethyl)amino]-3-chromanol hydrochloride.

28. A benzopyran compound which is N-((3*R*^{*},
4*S*^{*})-3-hydroxy-2,2-dimethyl-4-[(2-phenylethyl)amino]-3,4-dihydro-2*H*-benzopyran-7-yl}-4-methylbenzenesulfonamide.

29. A benzopyran compound which is N-((3*R*^{*},
4*S*^{*})-3-hydroxy-2,2-dimethyl-6-[(methylsulfonyl)amino]-4-[(2-phenylethyl)amino]-3,4-dihydro-2*H*-benzopyran-7-yl}-methanesulfonamide.

30. A benzopyran compound which is (3*R*^{*},

4S)-2,2-dimethyl-7-methylethylamino-4-[(2-phenylethyl)amino]-3-chromanol hydrochloride.*

31. A benzopyran compound which is *N-{(3R*,
4S*)-3-hydroxy-2,2-dimethyl-4-[(2-phenylethyl)amino]-3,4-dihydro-2H-chromen-7-yl}
-N-isopropylmethanesulfonamide hydrochloride.*
32. A pharmaceutical characterized by comprising the benzopyran compound according to any one of claims 1 to 31 or pharmaceutically acceptable salt thereof as an active ingredient.
33. A pharmaceutical for treating arrhythmia characterized by comprising the benzopyran compound according to any one of claims 1 to 31 or pharmaceutically acceptable salt thereof as an active ingredient.